



**BUSITEMA
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Pursuing Excellence

***SELECTING A MINING METHOD AND DESIGNING A
MINE LAYOUT FOR NARROW VEIN TYPE DEPOSITS***

CASE STUDY: NYAMULIRO WOLFRAM MINE

**FACULTY OF ENGINEERING
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DECLARATION

I MULONDO EMMANUEL, **BU/UG/2016/53**, do declare that the work contained in this project work is my original work except where explicit citations have been made. Therefore, it has never been submitted to any institution of higher learning for any academic award.

Signature.....

Date.....

APPROVAL

This project has been compiled and submitted to the Department of Mining and Water Resources Engineering for examination with the approval of my supervisor.

Mr. Tugume Wycliffe

Signature.....

Date.....

ACKNOWLEDGEMENT

Most importantly, I thank God for the gift of life He has offered to me to accomplish this project proposal and gather all the necessary information to compile this report.

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ABSTRACT

Minerals are the back bone of civilization and are essential to economic prosperity. As of now, mining is the primary method for extracting these minerals. Minerals can be classified as non-metallic, metallic & fossil fuels (Project, 2015), they are naturally occurring in various deposit types like carbonate hosted lead zinc deposits, porphyry deposits, hydrothermal deposits, etc. Mining of these mineral deposits can be done by either surface or underground methods.

Of interest to this research are the hydrothermal type deposits which occur as steeply dipping narrow veins. In the past, these have been worked either by high cost labor intensive methods which are able to follow the vein with minimal dilution for high grade production, or by lower cost mechanized methods with large equipment, with increased dilution levels and lower production grades (Hall, 1987).

Nyamuliro Wolfram mine operates on the same type of deposit with the near surface veins being less mineralized compared to the subsurface veins, thus underground mining is the viable option. But being a small-scale mining project, Nyamuliro wolfram mine lacks an appropriate mining method, as a result there's been lots of set-backs like low productivity (about one ton per day), lost reserves, environmental degradation, etc. This is because the minimum stope (mining) width is very small and can only accommodate hand tools or small sized mining equipment, which are incapable of excavating wide, stable stopes. The latter being responsible for increased production. This deviates from the goal of mining narrow vein type deposits which has always been to selectively extract the ore while minimizing the dilution (Morin, Bamber, & Scoble, 2004). Thus, there's a need to reduce the gap between selectivity and productivity at Nyamuliro Wolfram mine by implementing a better mining method.

In the following chapters, a detailed explanation of how a suitable mining method for Nyamuliro wolfram mine was arrived to, first the rock mass classification, then generating the ore body model, developing an app for selecting the mining method, and finally designing the mine layout for the deposit.

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